

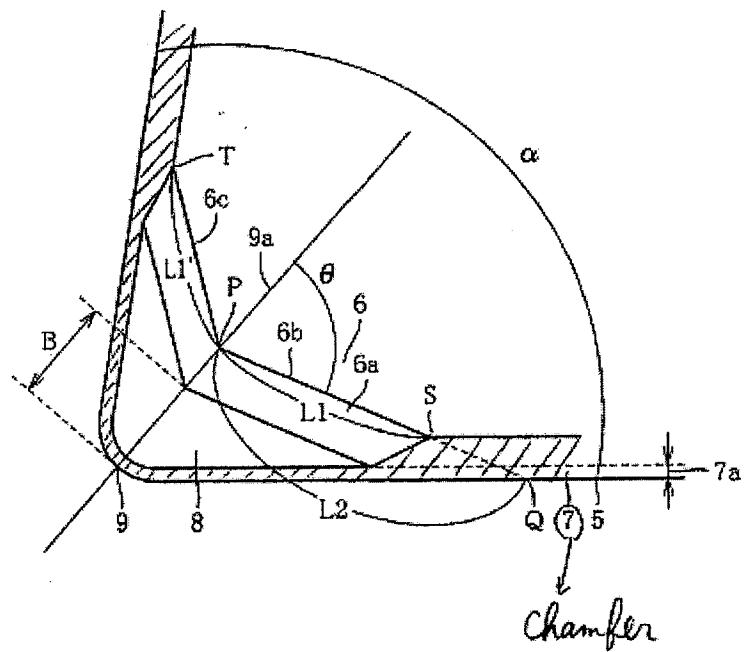
REMARKS

Claims 1-9 are pending.

The drawings are objected to under 35 C.F.R. § 1.83(a). The Office Action states that the drawings must show every feature of the invention specified in the claims. The Examiner contends that the “pair of ridges *reaching said chamfer*, the pair of ridges are on the apex of said protrusion” must be shown or the features canceled from the claims. This objection is traversed.

The Office Action has failed to provide any basis for asserting that the drawings do not show that the “pair of ridges *reaching said chamfer*, the pair of ridges are on the apex of said protrusion.” According to one aspect of the present subject matter, as described in independent claim 1 and depicted in the representative drawing of Fig. 2 below, the shaded portion corresponds to the claimed chamfer 7.

FIG.2



Page 13, lines 4-9 of the originally filed specification states:

As shown in Figs. 2 and 3, this indexable insert has a chamfer (negative land 7). An angle β (negative land angle) formed by the negative land 7 and the upper surface of the tool body is in the range of at least 15° and not more than 45° . *The negative land width 7a on the forward end of the apical angle is in the range of at least 0.02 mm and not more than 0.2 mm in top view.* Consequently, the cutting edge attains excellent strength (emphasis added).

In view of Fig. 2 and the corresponding description, the width of the chamfer 7 on the backside is wider than that on the forward end side and the ridges (6b, 6c) that reach the chamfer 7 on the backside. Fig. 2 shows, for example, that the pair of ridges reach the chamfer and are on the apex of the protrusion. Thus, the Examiner has no basis for asserting that the “pair of ridges *reaching said chamfer*, the pair of ridges are on the apex of said protrusion” is not shown. Withdrawal of the foregoing objection is therefore respectfully requested.

Claims 1-9 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. It was alleged that the claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. The Examiner concludes that Reference No. 7 corresponds to the chamfer and Reference Nos. 6b, 6c correspond to the pair of ridges. The Examiner contends that the ridges 6b and 6c do not actually reach the chamfer. Applicants traverse.

Claim 1 is fully supported in the written description, specifically, Fig. 2 and page 13, lines 4-9. See previous remarks in response to the drawing objection.

Claims 1-9 are rejected under 35 U.S.C. § 112, second paragraph, as indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner concludes that he will interpret the claimed “pair of ridges *reaching said chamfer*, the pair of ridges are on the apex of said protrusion” as a pair of ridges directed towards the nose of the insert.

The Examiner has failed to provide any basis for asserting that the claims are indefinite to one of ordinary skill in this art, especially in light of the supporting specification. The present claims are clear and definite to one of ordinary skill in this art. One of ordinary skill in this art would recognize that Fig. 2, specifically Reference Nos. 6b, 6c, and 7, and the corresponding written description support that the claimed pair of ridges reaching the chamfer.

Accordingly, one having ordinary skill in the art would not have difficulty understanding the scope of the presently claimed subject matter, particularly when reasonably interpreted in light of the supporting specification. Therefore, it is respectfully submitted that the imposed rejection under 35 U.S.C. § 112, second paragraph is not legally viable and hence, Applicants solicit withdrawal thereof.

Claims 1-9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,044,839 to Takahashi in view of U.S. Patent No. 5,707,185 to Mizutani.

The Office Action asserts that Takahashi teaches an insert having an upper surface with an apical angle part, having a polygonal shape in top view, and forming an edge and a chip breaker 7, where the chip breaker has a substantially symmetrical shape with respect to a section bisecting the apical angle of the apical angle part and has a protrusion 6 and a flat part 3a with a shear angle of 0° provided between the protrusion and the apical angle part. The Office Action

asserts that Takahashi also teaches a pair of arcuate ridges (R1 & R2) on the apex of the protrusion 6.

The Office Action acknowledges that Takahashi fails to disclose the height difference in the range of at least 0.02 mm and not more than 0.5 mm. The Examiner contends that it would have been obvious to one of ordinary skill in the art at the time the invention was made to vary ridge length depending on the side of the insert, distance from the corner, and the height of the chip breaker depending on the application of the tool and the thickness of the insert because it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges only involves routine skill in the art.

Takahashi fails to disclose or reasonably suggest that the ridges on the apex of the protrusion reach the chamfer of the insert, as required by claim 1.

The Office Action also admits that Takahashi fails to teach an indexable insert. The Examiner contends that it is well known to have an indexable insert for the purpose of increasing the number of cutting edges. Further, the Examiner admits that Takahashi fails to teach that the insert is prepared by bonding a superhard sintered body and to teach a chamfer that is formed on the intersection between the upper surface and the side surface.

As for the deficiencies, the Office Action relies on Kanada. The Examiner contends that Kanada teaches an insert having a hard sintered polycrystalline body 11 containing a cubic crystal boron nitride bonded to the upper surface of an apical angle part of the insert body. The Examiner concludes that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Takahashi to include a polycrystalline body containing a cubic crystal boron nitride bonded to the upper surface of an apical angle part as taught by Kanada for the purpose of enabling cutting with high precision.

In Takahashi, a breaker is fabricated *before* sintering. Sintering is performed and then the cutting tool having the breaker is made. In contrast, in the case where the superhard sintered body is used for the cutting tool, as in the claimed subject matter, sintering is performed under super high pressure, thus rendering it is impossible to fabricate a breaker before sintering. Therefore, the manufacturing process of the cutting tool described in Takahashi and that of the claimed subject matter are quite different.

Contrary to the Examiner's assertion, Kanada does not disclose or suggest that the indexable insert is prepared by bonding a superhard sintered body, as required by claim 1.

According to the claimed subject matter per claim 1, the ridges on the apex of the protrusion reach the chamfer of the indexable insert. Thereby, as taught in the instant specification, a pair of slopes is formed that has an adequate width under the ridges and the ridges have relatively long lengths to effectively discharge abatements by the slopes under various cutting conditions, (*see, e.g.*, Fig. 2 and pg. 13, lines 4-9). However, none of the references, disclose or suggest this, and apparently are unaware of the increased strength of the cutting edge and the improvement in the life of the indexable insert provided by the claimed indexable insert.

Obviousness can be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge readily available to one of ordinary skill in the art. *In re Kotzab*, 217 F.3d 1365, 1370 55 USPQ2d 1313, 1317 (Fed. Cir. 2000); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). There is no suggestion in Kanada or Mizutani to modify the insert of Takahashi to include a chamfer, let alone suggest that the pair of ridges

reach the chamfer, nor does common sense dictate the Examiner-asserted modifications. The Examiner has not provided any evidence that there would be any obvious benefit in making the asserted modification of Takahashi. *See KSR Int'l Co. v. Teleflex, Inc.*, 127 S.Ct. 1727, 82 USPQ2d 1385 (2007).

The only teaching of the pair of ridges reaching the chamfer is found in Applicants' disclosure. However, the teaching or suggestion to make a claimed combination and the reasonable expectation of success must not be based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

The combination of Takahashi, Kanada, and Mizutani does not suggest the claimed indexable insert because Kanada and Mizutani do not cure the deficiencies of Takahashi. As none of the cited references disclose the same indexable insert as disclosed by the present inventors, and even if combined still fail to disclose or suggest the elements recited by claim 1, the combination of the cited references does not render the indexable insert as recited by claim 1 obvious.

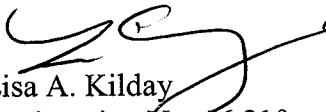
Dependent claims 2-9 are allowable for at least the same reasons as independent claim 1, and further distinguish the claimed indexable insert.

Withdrawal of the foregoing rejection is respectfully requested.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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